REMARKS

The Office Action states on page 2 that claim 14 is objected to render 37 CFR 1.75(c) as being of improper dependent form "for failing to further limit the subject matter of a previous claim." We note that claim 14 is a "product-by-process" claim in dependent form in which the product (seeds) is defined as having a disease controlled "according to", that is, by being treated by, the method of claim 1. Since such product-by-process claims have long been permitted in the USPTO as stated in the Manual of Patent Examining Procedure (MPEP), Eighth Edition, Section 2173.05(p), it is assumed, respectfully, the Examiner is either unaware of this or believes that the language, "has been controlled by", in claim 14 does not adequately state that the seeds were treated by the method of claim 1. It is submitted that the present amendment assures that claim 14 is a proper product-by-process claim.

On page 2 of the Office Action, it is stated that claims 1, 2, 5-9, and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Control of Phytopathogenic Prokaryotes By Cultural Management and Chemicals (Cultural Management), which teaches methods of controlling seed disease by sterilization including physical methods such as application of hot air and water and heat caused by microwave irradiation (Page 1, Section C, Table 2) and chemical methods such as application of various biocides (Page 9, Section C) and application of antibiotics

(Page 12), which the Office Action characterizes as an "effective microorganism". In setting out this rejection, the Action at the bottom of page 2 states that the "thus sterilized seed", that is, seed previously sterilized by a physical or chemical technique, are treated by an "effective microorganism", a term applied by the Office Action to the antibiotics such as streptomycin disclosed by Cultural Management.

Contrary to the assumption made in the rejection, antibiotics are not "effective microorganisms" as the term is defined for this invention, although they may be produced by microorganisms. Moreover, 1) antibiotics are not equivalent to such microorganisms since they are used up in application and do not have the advantage possessed by microorganisms of being able to "proliferate on their own so that they hold a lasting controlling effect", as pointed out on page 4, line 18 and 19 of the specification; and 2) there is nothing in the disclosure of Cultural Management to support the position that an antibiotic or anything that can be accurately described as an "effective microorganism" should be applied to seeds which have already been sterilized by a physical or chemical technique, as in the present claims. Rather, all the techniques disclosed by Cultural Management may be used alternatively to achieve a specific advantage.

Regarding claims 6 to 9, the Office Action points out various teachings of Cultural Management which are stated to disclose the specific features recited in these claims. The arguments stated previously against the rejection of claim 1 apply equally to claims 6 to 9, each of which is dependent from claim 1, regardless the features of dependent claims 6 to 9 allegedly taught by Cultural Management.

The Office Action on page 3 rejects Claims 1, 2, 5-7, and 9-14 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,828,999 to Jackson, which discloses a method of preventing or controlling bacterial harm to plants by applying to the diseased plant a bacteriophage (virus) containing one or more viral h mutants specific to at least one phage resistant mutant of the species of harmful bacterium. Also disclosed by Jackson in col. 6 is the development of a method of determining the number of bacteria on the surfaces and inside seeds by rinsing bean culls with distilled water (dw) and Clorox (NaOCl) solutions, inoculating aliquots from the rinses in a complex broth, and determining bacteria counts by plate count using complex agar media. As stated at the bottom of page 3 of the Office Action, this rejection, particularly of claims 1 and 14, is based on an interpretation of the disclosure of Jackson, as previously described, which concludes that this reference teaches a method of controlling a seed disease by sterilizing the seeds with Clorox solution (a chemical technique) based on the disclosure starting at col. 6, line 45, and treating the thus sterilized seeds with an

effective microorganism, i.e., a bacteriophage or virus, which is antagonistic against a pathogen of a seed borne disease. However, the foregoing interpretation of the Jackson disclosure, leading to the conclusion that it anticipates the aforementioned claims, is entirely unsupported by such disclosure, since the teaching of a Clorox treatment at the bottom of col. 6 of Jackson is solely as part of a procedure for determining the count of bacteria on the surfaces and inside of seeds, substituted in the described procedure by bean culls. There is no indication that a Clorox sterilizing treatment of bean culls or seeds is intended to be followed by a treatment with a bacteriophage as an effective microorganism. This is obvious from a reading of the entire disclosure of Jackson from col. 6, line 19 to the end of Table II in col. 7, wherein no mention is made of any treatment with a bacteriophage.

Regarding claims 2, 5, 6, 7, 9 and 10-13, the Office Action on page 4 identifies various portions of the Jackson disclosure which are stated to show the specific features recited in these claims. However, such claims are all dependent from claim 1, and it has been pointed out hereinabove why claim 1 is patentably distinguishable from Jackson. Moreover, with regard to the specific features recited in these claims: that 1) the pathogenic bacteria mentioned in col. 3, lines 7-15 of Jackson pointed out in the Office Action, are not the same as the "effective microorganism" recited in Claim 5; 2) the pathogen disclosed at col. 3, line 28 of

Jackson is not necessarily a pathogen of a seed borne disease as recited in claim 6 since there is no indication that the source of the pathogen is the mother plant; 3) the disclosure at col. 4, line 26 of Jackson of the use of 5% chloroform as part of a procedure to determine the bacteriophage mutants specific to a pathogenic bacterial host, is not the same as or equivalent to a chemical technique for sterilizing seeds prior to the treatment of such seeds with an effective microorganism, as recited in claim 9; and 4) the disclosure of Jackson at col. 4, line 26 does not teach the pelleting of seeds by a coating material containing the effective microorganism, as recited in claim 11.

Also stated in the Office Action on page 4 is that Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,828,999 to Jackson. However, 1) as pointed out previously in the discussion of the rejection of claim 1 and other claims as being anticipated by Jackson, the disclosure of Jackson does not include the initial sterilization of seeds by a physical or chemical technique, followed by treatment with an effective microorganism, which is required by the rejected claims. Furthermore, there is nothing in such disclosure which would lead a person having ordinary skill in the art to adopt such a procedure; and 2) the Jackson disclosure is limited to the use of a bacteriophage, which is a virus, as an effective microorganism, whereas claims 3 and 4 each

recites the use of a bacterium, which is entirely different from the bacteriophages (viruses) of Jackson, as the effective microorganism. These bacteria and virus microorganisms are so different as to make it extremely unlikely that a person skilled in the art would ever substitute one for the other.

The Office Action also rejects Claims 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Control of Phytopathogenic Prokaryotes By Cultural Management and Chemicals (Cultural Management). This rejection is traversed on two grounds: 1) as discussed previously in connection with the rejection of claim 1 and other claims as being anticipated by Cultural Management, the latter reference does not in fact disclose the initial sterilization of seeds followed by the application of an effective microorganism, as required by the methods of claims 3 and 4. Furthermore, there is nothing in the teaching of this reference to cause the skilled person to follow such procedure; and 2) as also brought out in the previous discussion of the rejection of claims as anticipated by Cultural Management, antibiotics such as streptomycin, disclosed in this reference as pathogen antagonists and interpreted in the Office Action as the same as effective microorganism of the present claims, are not in fact microorganisms at all but rather are compounds which may be synthesized by microorganisms. Again, there is nothing in the disclosure of Cultural Management which would lead a person having ordinary skill in the art to substitute a microorganism for the disclosed antibiotics.

Finally, the Office Action on Page 5 rejects Claims 10-13 under 35 U.S.C. 103(a) as being unpatentable over Control of Phytopathogenic Prokaryotes By Cultural Management and Chemicals (Cultural Management) in view of U.S. Patent No. 5,783,411 to Schisler et al. However, the primary reference, Cultural Management does not disclose or render obvious a method including the required initial sterilization by a physical or chemical technique followed by a treatment of the seeds with an effective microorganism, or the use of any effective microorganism at all since the antibiotics such as a streptomycin mentioned in the Office Action as fulfilling this requirement are broad spectrum biocides rather than an effective microorganism; note the listing of antibiotics in Cultural Management under the heading "Directed Chemical Control." These shortcomings of the primary reference, Cultural Management, are not overcome by the disclosure in Schisler et al. of administering techniques for treatment by an effective microorganism. Moreover, contrary to the statement in the first line of page 6 of the Office Action, Schisler et al. does not disclose as an administering technique, the pelleting of the seeds with a coating material containing the effective microorganism, as recited in claim 11.

In view of the foregoing, reconsideration and allowance are earnestly solicited.

Respectfully submitted,

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APPENDIX I

AMENDED CLAIMS WITH AMENDMENTS INDICATED THEREIN BY BRACKETS AND UNDERLINING

14. (Amended) Seeds a disease of which has been controlled by <u>treating the seeds by</u> the method [according to] <u>of</u> claim 1.